

Exam Alerts

The following is a compilation of all the Exam Alerts found throughout the book for your convenience.

ExamAlert

Perform backups before making changes!

ExamAlert

Always consider corporate policies, procedures, and impacts before implementing changes!

ExamAlert

Check the connections first! They are a common culprit outside and inside the computer.

ExamAlert

If a problem is electrical, contact your building supervisor or manager so that they can contact a licensed electrician to fix the problem.

ExamAlert

Know the basic set of PC tools and their purpose!

ExamAlert

To prevent ESD, use an antistatic wrist strap and other antistatic methods.

ExamAlert

Identify motherboard components for the exam.

ExamAlert

Go to the manufacturer's website for technical documentation.

ExamAlert

Know the concept of the northbridge and southbridge for the exam!

ExamAlert

Identify the PCIe (x16 and x1) and PCI expansion buses for the exam.

ExamAlert

Identify back-panel connectors (I/O ports) for the exam.

ExamAlert

Know the voltages supplied to an ATX motherboard by a power supply: +3.3 V, +5 V, +12 V, -12 V outputs and +5 V standby output.

ExamAlert

Know the basics of ATX, microATX, ITX, and BTX for the exam.

ExamAlert

If you boot a PC and see a black screen with a white blinking underscore on the top left, the issue could be the boot order.

ExamAlert

Know how to flash the BIOS for the exam!

ExamAlert

If the time and date have reset on a system, there is a good chance that the rest of the settings have also reset to defaults. You should always review the UEFI/BIOS configuration settings, compare them with your organization's documentation, and make any modifications necessary. Always remember to save your work!

ExamAlert

For today's CPUs, two of the most commonly used terms are *bus speed* (the base clock of the motherboard) and *clock speed* (the frequency of the CPU). They might not be completely accurate, technically, but you will see and hear them often and you could see them on the exam as well.

ExamAlert

Know the differences between 32-bit and 64-bit architectures. For example, remember that 32-bit CPUs can only address a maximum of 4 GB of RAM.

ExamAlert

Know the socket types used with common Intel and AMD CPUs.

ExamAlert

Know the difference between L1, L2, and L3 cache for the exam.

ExamAlert

Know the differences between Hyper-Threading and multicore technologies for the exam. Hyper-Threading enables a single-core CPU to calculate two instruction sets simultaneously, whereas multicore CPUs calculate two or more instruction sets simultaneously—one instruction set per core.

ExamAlert

Reapply thermal compound whenever removing and reinstalling a heat sink.

ExamAlert

Of all PC cooling methods, liquid cooling systems can dissipate heat the most efficiently.

ExamAlert

When troubleshooting the CPU, be sure to first check all connections and then make sure the fan, heat sink, and CPU are secure and installed properly.

ExamAlert

Know how to calculate the data transfer rate of DDR RAM for the exam.

ExamAlert

Know the number of pins in the various DDR memory modules.

ExamAlert

Know the various DDR3 standards for the exam.

ExamAlert

Know the difference between single-, dual-, triple-, and quad-channel for the exam.

ExamAlert

Know how to select, install, and verify RAM for the exam.

ExamAlert

Verify compatibility of RAM when troubleshooting!

ExamAlert

If you find an AC outlet is improperly wired, contact your supervisor and/or building management to resolve the problem.

ExamAlert

To keep an AC outlet's voltage steady, use a UPS or line conditioner.

ExamAlert

A power surge is an unexpected increase in voltage. A brownout is a drop in voltage that can cause computers to shut off. A blackout is a total loss of power for a prolonged time.

ExamAlert

To protect against surges and spikes, use a surge protector!

ExamAlert

Use a UPS/battery backup to protect your computer from power outages!

ExamAlert

Do *not* connect laser printers to UPS devices.

ExamAlert

Original ATX power supplies connect to the motherboard with a 20-pin connector. Newer ATX 12V 2.x power supplies connect with a 24-pin connector.

ExamAlert

The purpose of "dual-rail" PSUs is to separate and limit the current through each wire to avoid overheating.

ExamAlert

Be able to identify power connectors and know their associated voltages.

ExamAlert

Do not open a power supply! If it has failed, replace it with a working unit.

ExamAlert

Know the maximum data transfer rates for SATA Revisions 1, 2, 3, and 3.2.

ExamAlert

Remember that older SATA drives installed to newer SATA controllers can run only at the speed of the drive.

ExamAlert

Understand hard drive specifications, including capacity, data transfer rate, and cache. And for magnetic disk drives specifically, know rotational speed and latency.

ExamAlert

Know the tools available to defragment a hard drive.

ExamAlert

You've probably noticed by now that most magnetic media is known as "disk" and optical media is known as "disc." Keep this in mind for the exam.

ExamAlert

Know the difference between CD-ROM, CD-R, and CD-RW.

ExamAlert

The paper clip should be added to your toolkit; it dislodges jammed optical trays.

ExamAlert

Know the capacity of DVD-5 and DVD-18 for the exam.

ExamAlert

Know the differences between BD-R and BD-RE for the exam.

ExamAlert

Remember to *safely remove* USB flash drives in the operating system before physically disconnecting them.

ExamAlert

Know the different capacities of standard SD, SDHC, and SDXC.

ExamAlert

Press the Num Lock key to enable/disable the numeric keypad on a laptop. If the Num Lock indicator light is on, then the numeric key is enabled.

ExamAlert

Understand the steps involved when replacing keyboards for the exam.

ExamAlert

Warning! The inverter should not be handled if the laptop is on! Be sure to turn off and unplug the laptop and remove the battery before removing an inverter.

ExamAlert

If the fan makes a high-pitched noise, try using a vacuum (from the outside) or blowing compressed air (from the inside).

ExamAlert

Know where to modify battery alarms in Windows.

ExamAlert

If the laptop can't connect to the wireless network, try pressing the Wi-Fi button near the Power button, or press the associated function key.

ExamAlert

For the exam, know the various ways that a laptop could communicate with other computers, including wired and wireless Ethernet, Bluetooth, IR, cellular WAN, and dial-up modems.

ExamAlert

Know that laptop hard drive types include magnetic disk, SSD, and hybrid. Also be aware they have either 2.5- or 1.8-inch form factors.

ExamAlert

Memorize the types of SODIMMs and understand the pin format differences between them and DIMMs.

ExamAlert

Memorize the basic types of hardware used by a tablet computer.

ExamAlert

Memorize the basic types of hardware used by a smartphone.

ExamAlert

Know the basic differences between tablets, smartphones, and laptops.

ExamAlert

Understand the types of ports used by Android-based and iOS-based mobile devices.

ExamAlert

Understand the difference between configuring tethering and creating a mobile hotspot.

ExamAlert

Be able to define the Internet of Things (IoT).

ExamAlert

Know the differences between the various editions of Windows 8.

ExamAlert

Memorize the *minimum* requirements for Windows 8.

ExamAlert

Know the differences between the various editions of Windows 7.

ExamAlert

Memorize the *minimum* requirements for Windows 7.

An important consideration is the CPU. Not only must it be fast enough, it must also be the right type: 32-bit or 64-bit.

ExamAlert

Know the difference between a local, network, drive image, and recovery disc installation.

ExamAlert

Understand that multiboots allow two or more operating systems to inhabit one hard drive.

ExamAlert

Remember that the Upgrade Advisor can be used to check if a system meets Windows 7 requirements.

ExamAlert

Be sure you know where tools and settings are located within the various operating systems mentioned. You will encounter performance-based exam questions that will expect you to navigate through Windows and complete specific tasks.

ExamAlert

Know that you can view the log files to aid in troubleshooting Windows installation issues. Use the Windows Recovery Environment if necessary.

ExamAlert

Know your Windows 7 installation troubleshooting techniques for the exam.

ExamAlert

Know the main differences between the Vista editions Home Premium, Business, and Ultimate for the exam.

ExamAlert

Memorize the *minimum* requirements for Windows Vista.

ExamAlert

Be able to identify the various Windows components by name.

ExamAlert

Know how to modify notification icons for the exam.

ExamAlert

The CompTIA A+ exams expect you to know the individual icons in the Control Panel. In Windows, this is also referred to as All Control Panel Items. Study them!

ExamAlert

Know how to open programs from the Search tool, the Start menu, and from the Run prompt.

ExamAlert

Know how to add snap-ins to an MMC.

ExamAlert

Know how to access the properties of a device, install drivers, and enable/disable devices in Device Manager.

ExamAlert

Understand how to open Task Manager, how to read its Performance tab, and how to end processes and applications.

ExamAlert

If you need to disable programs from starting at startup, use Msconfig.

ExamAlert

Know where to configure virtual memory, and know the location of pagefile.sys.

ExamAlert

Know how to start and stop services within the Services console and in the Command Prompt.

ExamAlert

Know the differences between standby, sleep, and hibernate.

ExamAlert

Understand the tools that can be used to migrate user data.

ExamAlert

Know how to open the Registry Editor, modify entries, export the registry, and connect to remote registries.

ExamAlert

Be able to explain the difference between Remote Assistance and Remote Desktop.

ExamAlert

Know how to use the Program Compatibility utility and the Compatibility tab in a program's Properties window.

ExamAlert

Understand what XP Mode does.

ExamAlert

Memorize the required Windows 8/7/Vista boot files and their functions.

ExamAlert

It is common for multimedia applications to attempt to become the default program of audio and video file formats. Be prepared to add or remove file associations for these types of applications.

ExamAlert

Know the difference between CD, MD, and RD.

ExamAlert

Understand how to use DIR, TREE, COPY, and DEL.

ExamAlert

Understand the differences between basic and dynamic disks, primary partitions, extended partitions, logical drives, and volumes.

ExamAlert

Know the differences between NTFS, FAT32, exFAT, and CDFS.

ExamAlert

Know how to install Windows updates and how to modify how they are downloaded and installed.

ExamAlert

Know where to check the SP level of Windows.

ExamAlert

Know how to remove temporary files from the operating system and from the browser.

ExamAlert

Know how to access the disk defragmenter in Windows, and know the `defrag` command in the Command Prompt.

ExamAlert

Be able to demonstrate how to back up data in Windows 8, 7, and Vista.

ExamAlert

Understand how to enable and disable System Restore, how to create restore points, and how to restore the system to an earlier point in time.

ExamAlert

Know what Shadow Copy is and where to find shadow copies of files.

ExamAlert

The CompTIA 220-902 exam will present performance-based questions requiring you to know where the various troubleshooting tools are located within Windows and how to use them to resolve a given problem. Pay very close attention to the details in this chapter!

ExamAlert

Memorize the different Windows RE options in Windows 8 and Windows 7/Vista.

ExamAlert

Know the Advanced Boot Options/Startup Settings for the exam.

ExamAlert

Make sure you understand that `bootrec` can be used to troubleshoot and repair a master boot record, a boot sector, or a Boot Configuration Data store.

ExamAlert

Know how to recover from Windows boot errors.

ExamAlert

Know what the exclamation point and down arrow indicate in Device Manager.

ExamAlert

Be able to describe the System, Application, and Security log files as well as the information, warning, error, and audit success events.

ExamAlert

Know the reasons to use `Msconfig`.

ExamAlert

Know how Stop errors occur and how memory dumps function.

ExamAlert

Learn by doing! Practice every command discussed on your own computers! Learn more about each by accessing their help files—type `/?` after each command.

ExamAlert

Memorize as many of the commands mentioned in this section as you can! Try them on your computer, and write them down to force those little gray cells into action.

ExamAlert

Know your `bootrec` command and options! I can't stress it enough!

ExamAlert

Be able to identify video connectors and ports.

ExamAlert

Know how to install and test a video card.

ExamAlert

Know the high-def resolution modes and understand the difference between the 16:9, 16:10, 8:5, and 4:3 aspect ratios.

ExamAlert

Know the standard audio port color codes.

ExamAlert

Know how to install sound cards, connect speakers, and connect other internal audio connections.

ExamAlert

Know what to do when troubleshooting a "no sound from speakers" problem. Check volume, mute, connections, and power.

ExamAlert

Memorize the specifications for USB; focus on USB 2.0 and higher.

ExamAlert

Know the specifications for IEEE 1394a (FireWire 400) and 1394b (FireWire 800).

ExamAlert

Know the Thunderbolt versions, speeds, and connection types.

ExamAlert

Remember that audio/video workstations need specialized A/V cards; large, fast hard drives; and multiple monitors.

ExamAlert

Don't forget, CAD/CAM computers need powerful, multicore CPUs, high-end video cards, and as much RAM as possible.

ExamAlert

Remember that virtualization systems depend on the CPU and RAM heavily. These systems require maximum RAM and CPU cores.

ExamAlert

Viruses have a hard time sticking around a thin client because the RAM is completely cleared every time it is turned off.

ExamAlert

A thin client runs basic, single-purpose applications, meets the minimum manufacturer's requirements for the selected operating system, and requires network connectivity to reach a server or host system where some, or even the majority, of processing takes place.

ExamAlert

A standard thick client runs desktop applications such as Microsoft Office and meets the manufacturer's recommended requirements for the selected operating system. The majority of processing takes place on the thick client itself.

ExamAlert

Remember that a home server PC should have a fast network adapter, a RAID array, and needs to be part of a network (such as a HomeGroup) so that file and print sharing and media streaming can be configured.

ExamAlert

Know that an HTPC needs a small form factor, quiet equipment, surround sound audio, HDMI output, and possibly a TV tuner.

ExamAlert

A gaming PC requires a multicore CPU, high-end video with specialized GPU, a high-definition sound card, and high-end cooling.

ExamAlert

Know the steps of the laser printing process (also known as an imaging process).

ExamAlert

Although specific laser printer component names differ by manufacturer, CompTIA lists the following laser printer components that you should be familiar with for the 901 exam:

Imaging drum, fuser assembly, transfer belt, transfer roller, pickup rollers, separate pads, duplexing assembly.

ExamAlert

Of all printer types, the laser printer is considered to have the lowest cost per page, making it an excellent long-term printer choice for businesses.

ExamAlert

Know that inkjet printer components include ink cartridge, print head, roller, feeder, duplexing assembly, carriage, and belt.

ExamAlert

Know the four printer configuration settings: duplex, collate, orientation, and quality.

ExamAlert

Know how to configure spooling and how to start and stop the Print Spooler service within Computer Management, Task Manager, and in the Command Prompt.

ExamAlert

Know the four types of virtual printing: print to file, print to XPS, print to PDF, and print to image. Perform each type of virtual printing on your own computer.

ExamAlert

Be able to define LAN, WAN, MAN, and PAN.

ExamAlert

Be able to describe typical network devices.

ExamAlert

Know what SaaS, IaaS, and PaaS are.

ExamAlert

Know what public, private, hybrid, and community clouds are.

ExamAlert

Know the differences between file servers, authentication servers, print servers, e-mail servers, web servers, DHCP servers, DNS servers, and proxy servers.

ExamAlert

Know what network speeds Cat 3, 5, 5e, 6, and 7 are rated for.

ExamAlert

If a computer cannot connect to the network, check the network cable first. Make sure the RJ45 plug has a solid connection.

ExamAlert

To meet fire code, use plenum-rated cable above drop ceilings and anywhere else necessary.

ExamAlert

STP cable is resistant to EMI.

ExamAlert

Know the differences between multimode and single-mode, as well as the approximate speed and distance limitations.

ExamAlert

Know the following tools for the exam: crimper, wire/cable stripper, tone generator and probe, cable tester, punchdown tool, and loopback plug.

ExamAlert

Know the difference between static and dynamic IP addresses.

ExamAlert

To use the gateway, computers must be on the same network number as the gateway device.

ExamAlert

Know where and how to configure client-side DNS and DHCP settings.

ExamAlert

Memorize the IP ranges for Classes A, B, and C.

ExamAlert

Memorize the default subnet masks for Classes A, B, and C.

ExamAlert

Memorize the private IP ranges for Classes A, B, and C.

ExamAlert

Know what CIDR is and understand how to read CIDR notation.

ExamAlert

Know the loopback addresses for IPv6 and IPv4.

ExamAlert

Understand how IPv6 addresses can be truncated.

ExamAlert

Memorize the protocol port numbers in Table 15.8!

ExamAlert

I know there's a lot, but know your protocols and their functions for the exam! Write 'em down or make flash cards to commit them to memory.

ExamAlert

Understand how cable Internet connections are made.

ExamAlert

Understand the concept of the LAN and WAN address of a SOHO router. It is the basis for all routing!

ExamAlert

Know the data rates, and frequencies used, for each of the 802.11 versions!

ExamAlert

Know the difference between the wireless frequencies 5 GHz and 2.4 GHz and the channel ranges for each.

ExamAlert

Know the terms NAT, DNAT, port forwarding, port triggering, DMZ, QoS, and UPnP. Practice working with these technologies on your own SOHO router or with an online emulator.

ExamAlert

Know the difference between half-duplex and full-duplex.

ExamAlert

Be able to define the differences between a HomeGroup, workgroup, and domain.

ExamAlert

Know how to map network drives in the GUI and in the Command Prompt.

ExamAlert

To view additional IP configuration information, such as DNS servers and MAC addresses, use the `ipconfig /all` command.

ExamAlert

Know how to ping the local loopback IPv4 and IPv6 addresses.

ExamAlert

Know how to use the `-t`, `-n`, `-l`, `-a`, `-4`, and `-6` switches with ping.

ExamAlert

Double-study your troubleshooting techniques! It's all about troubleshooting!

ExamAlert

Know the CompTIA malware removal procedure.

ExamAlert

Know what to do first when troubleshooting a virus.

ExamAlert

Understand how to disable or remove a proxy server configuration in the web browser.

ExamAlert

Know the differences between a firewall, UTM, IDS, and IPS.

ExamAlert

Know the differences between clearing, purging, and destruction.

ExamAlert

Understand what is required for a complex password.

ExamAlert

Know how to enable/disable accounts, reset passwords, and modify password policy!

ExamAlert

Know the differences between dictionary and brute-force attacks.

ExamAlert

Be sure to know how to turn UAC on and off for the exam!

ExamAlert

To view files such as `bootmgr`, `pagefile.sys`, and `hiberfil.sys`, deselect the Hide protected operating system files checkbox.

ExamAlert

NTFS permissions are modified in the Security tab of the folder's Properties window.

ExamAlert

Know the components necessary for BitLocker.

ExamAlert

Remember to change the admin password first before anything else!

ExamAlert

Know the various ways to secure a SOHO router.

ExamAlert

Understand the difference between open source and closed source.

ExamAlert

Know where to obtain applications for Android and iOS devices.

ExamAlert

Understand the concepts of *accelerometer* and *gyroscope*.

ExamAlert

Know that GPS or Location Services needs to be enabled in Settings for many applications to work.

ExamAlert

Understand the definition of geotracking.

ExamAlert

Know what airplane mode is and how to configure it on Android and Apple devices.

ExamAlert

Know that the IMEI ID identifies the device and the IMSI ID identifies the user of the device.

ExamAlert

Understand how to connect to a Wi-Fi network in Android and iOS.

ExamAlert

Wi-Fi Calling is the ability to place and receive phone calls over the Wi-Fi network (using a type of VoIP). It takes advantage of the user's Internet connection but must be supported by the cellular provider, by the mobile device, and the user must be within fairly close range of the WAP to avoid call drops.

ExamAlert

Know the terms *mobile hotspot* and *USB tethering* and how they operate.

ExamAlert

Know your Wi-Fi troubleshooting techniques!

ExamAlert

Know how to configure Bluetooth devices in Android and iOS.

ExamAlert

Know your Bluetooth troubleshooting techniques!

ExamAlert

Know how to add web-based and POP3 e-mail accounts in Android and iOS.

ExamAlert

When troubleshooting e-mail connections on mobile devices, double-check all settings such as username, password, server name, and port number.

ExamAlert

Know the various ways to synchronize data between an Android and a PC.

ExamAlert

Know the various ways to synchronize data between an Apple mobile device and a PC or Mac.

ExamAlert

Know how to configure a screen lock using a passcode or password and how to disable visible passwords.

ExamAlert

Understand the consequences of entering an incorrect passcode too many times.

ExamAlert

Know what locator applications are.

ExamAlert

Know the remote wipe programs available for mobile devices.

ExamAlert

Know how to check for, and perform, Android and iOS updates.

ExamAlert

Understand the term *jailbreaking*.

ExamAlert

Understand how to stop apps on Android and Apple devices.

ExamAlert

Know how to perform soft and hard resets on Android devices.

ExamAlert

Remember how to reset settings and erase all content on iOS devices.

ExamAlert

Understand what the Finder and Spotlight programs are in OS X.

ExamAlert

Know how to configure multiple desktops, Screen Sharing, and the replication of the display to a secondary monitor.

ExamAlert

Know how to use the Time Machine, Disk Utility, and Force Quit tools in OS X.

ExamAlert

Know your Linux commands! Practice them on a distribution such as Ubuntu or in OS X—or both!

ExamAlert

Do not touch an LCD's inverter if the device is on!

ExamAlert

Remember the three main ways to avoid ESD: wearing an antistatic strap, touching the computer case, and using antistatic bags.

ExamAlert

Know that an MSDS contains information about chemical substances and hazards.

ExamAlert

Check your local municipal and EPA guidelines for disposal of batteries and other equipment.

ExamAlert

Be sure to memorize the A+ six-step troubleshooting theory!

ExamAlert

Be professional, punctual, positive, and practice all the other skills mentioned in this section. They are important for the exam—and much more important in the computer field.

ExamAlert

I strongly suggest that you *do not* take both exams on the same day. Instead, take them a week or so apart (at least). Trust me on this.

ExamAlert

You've been warned! Practice as much as possible on the following:

- ▶ Real desktop/laptop computer hardware and software
- ▶ A SOHO router
- ▶ Smartphones and tablets
- ▶ Printers, displays, and other peripherals

ExamAlert

Do not register for the exam until you are thoroughly prepared. Meticulously complete items 1 through 5 in Table 20.1 before you register.